REMARKS

Applicants respectfully request further examination and reconsideration in view of the above amendment and the remarks set forth below. Prior to this amendment, Claims 1-76 were pending. Of those, Claims 46-76 are withdrawn. By the above amendment, Claims 1 and 28 are amended and Claim 32 is canceled, and new claims 77-79 are added. Accordingly, Claims 1-31 and 33-79 are pending in this application.

I. Claim Rejections under 35 U.S.C. §102

Within the Office Action, Claims 1, 2, 3, 5, 8, 28, and 29 are rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 6,770,183 to Hencken et al. ("Hencken"). The Applicants respectfully traverse these rejections for the reasons set forth fully below.

Claim 1

According to the Office Action, Hencken discloses a pump having a porous structure comprising a substrate 105 and a cover 125 forming microchannels 110. Electrodes 115 formed at opposite sides of the microchannels and coupled to a voltage source.

The Applicants agree that Hencken teaches an electrokinetic pump including embedded unitary electrodes 115 in contact with each of a plurality of microchannels on either end of a channel structure 110. Hencken specifically teaches that the electrodes 115 are vapor deposited on either end of the channel structure. However, Hencken appears to teach that the unitary electrodes 115 are vapor-deposited from above on to the channel structure 110. (Based on the construction illustrated in FIG. 1, lower drawing.) Whereupon, the porous structure is formed by attaching the cover 125. This construction leads to several problems. Specifically, the thickness of the electrode in the direction of fluid flow is determined by a lithographic feature (as are the microchannel width) inherently limiting the electrode thickness to the microchannel width (for channels of a minimum width). In the upper drawing of FIG. 1, the thickness of the electrodes 115 in the direction parallel to fluid flow is clearly much greater than the scale of the microchannel dimensions in the structure 110. Even in the lower drawing, this thickness is at least twice as great as the microchannel height.

Unlike Hencken, the present invention, as recited in the amended Claim 1 listed above, relates to an electroosmotic pump that includes a porous structure having an average pore size with a first continuous layer of electrically conductive material having a first thickness in a dimension parallel to an overall direction of fluid flow, and wherein the first thickness is less

than the average pore size. Using this first continuous layer as an electrode provides advantages, including increased uniformity of fluid flow, over the device of Hencken. As electrical flow through a porous electrode will not be completely uniform, disposing an electrode that is thick relative to the average pore size pore size, and has non-uniform current flowing therethrough, will cause the non-uniform flow in a manner similar to that discussed in the background section of the present specification, specifically with reference to FIG. 6. Hencken makes no teaching or suggestion that the dimensions of the electrode play a role in ensuring uniform flow, nor of any other advantages provided by a thin film electrode deposited in a different way relative to the channel. For at least these reasons, Claim 1 is allowable over Hencken.

Claims 2, 3, 5, and 8 are all dependent on the independent Claim 1. As discussed above, Claim 1 is allowable over Hencken. Thus, Claims 2, 3, 5, and 8 are all allowable as being dependent on an allowable base claim.

Claim 28

Within the Office Action, Claim 32 is objected to as being dependent from an allowable base claim, but would be allowable if rewritten in independent form. By the above amendment, Claim 28 is amended to incorporate all the limitations of Claim 32. For at least these reasons Claim 28 is now in condition for allowance over Hencken.

Claim 29 is dependent on the independent Claim 28. As discussed above, Claim 28 is allowable over Hencken. Thus, Claim 29 is allowable as being dependent on an allowable base claim.

II. Claim Rejections under 35 U.S.C. §103

Within the Office Action, Claims 18, 19, and 39 are rejected under 35 U.S.C. §103(a) as unpatentable over Hencken. The Applicants respectfully traverse these rejections for the reasons set forth fully below.

Claims 18 and 19 are all dependent on the independent Claim 1. As discussed above, Claim 1 is allowable over Hencken. Thus, Claims 18 and 19 are all allowable as being dependent on an allowable base claim.

Claim 39 is dependent on the independent Claim 28. As discussed above, Claim 28 is allowable over Hencken. Thus, Claim 39 is allowable as being dependent on an allowable base claim.

Within the Office Action, Claims 20, 25, 26, 40, and 45 are rejected under 35 U.S.C. §103(a) as unpatentable over Hencken in view of U.S. Patent No. 6,103,199 to Bjornson et al.

The Applicants respectfully traverse these rejections for the reasons set forth fully below.

Claims 20, 25, and 26 are all dependent on the independent Claim 1. As discussed above, Claim 1 is allowable over Hencken. Thus, Claims 20, 25, and 26 are all allowable as being dependent on an allowable base claim.

Claims 40 and 45 are all dependent on the independent Claim 28. As discussed above, Claim 28 is allowable over Hencken. Thus, Claims 40 and 45 are all allowable as being dependent on an allowable base claim.

III. Claims Withdrawn by the Examiner

Within the Office Action, Claims 9-16, 21-24, 33-37, 41-44, and 46-76 stand withdrawn pursuant to 37 C.F.R. 1.142(b) as being drawn to a non-elected invention or species.

Above, arguments are presented showing the allowability of Claims 1 and 28. Accordingly, Claims 9-16, and 21-24 are allowable as being dependent from allowable linking Claim 1. Additionally, Claims 33-37, and 41-44 are allowable as being dependent from allowable linking Claim 1.

IV. New Claims

New Claim 77 incorporates all the limitations of original claims 1 and 4. Since Claim 4 was objected to as being dependent from a rejected claim, Claim 77 is allowable.

New Claim 78 incorporates all the limitations of original claims 1 and 6. Since Claim 6 was objected to as being dependent from a rejected claim, Claim 78 is allowable.

New Claim 79 incorporates all the limitations of original claims 1 and 7. Since Claim 7 was objected to as being dependent from a rejected claim, Claim 79 is allowable.

New Claim 80 relates to an electroosmotic pump that includes a porous structure including two surfaces, at least one of which has a two-dimensional pattern of apertures thereon, and each of which has an electrically conductive layer thereon. Hencken relates to a one-dimensional layer of sandwiched channels and does not teach or suggest a pump similar to that of Claim80. Claim 80 should be allowed.

New Claim 81 relates to an electroosmotic porous structure in which apertures of a porous structure are each surrounded by an electrically conductive material. As described above with reference to Claim 1, the construction of Hencken causes several problems. Another of these is that the electrode does not surround each opening of the channel structure (the top portion of each channel is provided by the lid 125). In essence, each channel opening has a "U"

shaped portion of electrode around it. For at least these reasons, Hencken does not teach or suggest a structure similar to that of Claim 81. Claim 81 should be allowed.

For the reasons given above, the Applicants submit that claims 1-31, 33-45, and 77-79 are in condition for allowance. If the Examiner has any questions or comments, the Examiner is encouraged to call the undersigned at (408) 530-9700 to discuss the same so that any outstanding issues can be expeditiously resolved.

Respectfully submitted,
HAVERSTOCK & OWENS LLP

Dated: 1-13-06

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CERTIFICATE OF MAILING (37 CFR§ 1.8(a))

I hereby certify that this paper (along with any referred to as being attached or enclosed) is being deposited with the U.S. Postal Service on the date shown below with sufficient postage as first class mail in an envelope addressed to the: Commissioner for Patents, P.O. Box 1450 Alexandria, VA 22313-1450

HAVERSTOCK & OWENS LLP.

Date: 1-13-06 By: